IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 1, August 2022
Impact Factor: 6.252

Novel Approach of Power Quality Issues Suppression using Cascaded H-Bridge Multilevel Inverter Based DSTATCOM

P. Sujidha[1], M. Sarojini Devi[2], A. Manjula[3], N. Thillainayagi[4], A. Usha[5]
Assistant Professor, Department of Electrical and Electronics Engineering[1,2,3,4,5]
Mohamed Sathak Engineering College, Kilakarai, India

Abstract: *In modern information society requirements and expectations associated with power quality have become increasingly important. Among the different disturbances affecting the power quality, the voltage sag are considered as a most important power quality problem faced by utilities & industrial consumer & equipment like PLC (Programmable Logic Controller), ASD (Adjustable Speed Drives) which need to be fully investigated. Custom power device are effective means for mitigating the voltage related issues prominently voltage sag, unbalanced load voltage, voltage regulation, sag/ swell etc. by compensating the reactive power with the injection of shunt current. In this paper by using three level H-bridge topology cascaded multilevel inverter based DSTATCOM the Power Quality issues are compensated effectively.*

Keywords: Cascaded Multilevel Inverter, DSTATCOM, Power Quality.

REFERENCES

[1]. Mohit Bajaj, Vinay Kumar Dwivedi, Ankit Kumar, Anurag Bansal ,"Design and simulation of DSTATCOM for Power Quality Enhancement in distribution networks under various fault condition", IJETAE, Volume 3, Issue 4, page no.- 620-626,April 2013.

[2]. Ambarnath Banerji , Sujit K. Biswas , Bhim Singh , "DSTATCOM Application for Mitigation of Voltage Sag Caused by Dynamic Loads in Autonomous Systems" International Journal of Power Electronics and Drive System (IJPEDS), vol.2, No.2, June 2012.

[3]. J.Rodriguez. Jih-sheng Lai, and F Zheng peng, "Multilevel Inverters;A Survey of Topologies, Controls, and Applications," IEEE Trans.Ind. Electron., vol.49, n04., pp.724-738,Aug.2002.

[4]. Smriti Dey, "Application of Distribution Static Synchronous Compensator in Electrical Distribution System", International Journal Of Innovative Research in Electrical, Electronics, Instrumentation and Control Engineering,Vol. 3, Issue 5, May 2015.

[5]. P.Shyam Kiran, Y. Naveen and ,A Prasada Rao ,"Modeling and Simulation of Cascaded H-Bridge Multilevel Inverter Based DSTATCOM for the improvement of Power Quality ",IEEE –IICPE 2010, India International Conference on Power Electronics, NSIT-New Delhi, January 2011.

[6]. Pragti Jyotishi, Deeparamchandani,"Mitigate Voltage Sag/Swell Condition and Power Quality Improvement in Distribution Line Using DSTATCOM",Pragti Jyotishi et al Int. Journal of Engineering Research and Applications, Vol. 3, Issue 6, pp.667-674 , Nov-Dec 2013.

[7]. Manbir Kaur,Prince Jindal ,"D-STATCOM for Voltage Sag, Voltage Swell Mitigation Using Matlab Simulink",International Journal of Advanced Technology in Engineering and Science,Volume No.03, Special Issue No. 02, February 2015

[8]. Elango, S.; Chandra Sekaran, E., "Mitigation of Voltage Sag by Using Distribution Static Compensator (DSTATCOM)," Process Automation, Control and Computing (PACC), 2011 International Conference on , vol., no., pp.1,6, 20-22 July 2011.

[9]. Ledwich, G.; Ghosh, A., "A flexible DSTATCOM operating in voltage or current control mode," Generation, Transmission and Distribution, IEE Proceedings- ,vol.149, no.2, pp.215,224, Mar 2002.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 1, August 2022
Impact Factor: 6.252

[10]. Haque, M. H., "Compensation of distribution system voltage sag by DVR and DSTATCOM,"Power Tech Proceedings, 2001 IEEE Porto, vol.1, no., pp.5 pp.vol.1, 2001.

[11]. Bollen, M. H J, "Characteristic of voltage dips (sags) in power systems," Harmonics and Quality of Power Proceedings, 1998. Proceedings. 8th International Conference on, vol.1, no., pp.555,560 vol.1, 14-18 Oct 1998.

[12]. F. Martzloff, Power quality work at International Electrotechnical Commission,PQA-97 Europe, June 1997, Stockholm, Sweden, Elforsk: Stockholm, Sweden.

[13]. P. Heine, "Voltage sags in power distribution networks," Ph.D. Dissertation, Department of Electrical Engineering, Aalto University School of Science and technology, Espoo, Finland, 2005.

[14]. M. F. Faisal, "Power quality management program: TNB's Experience," Distribution Engineering Department, TNB, 2005.

[15]. M.C.Granaghan, M.F.; Mueller, D.R.; Samotyj, M.J., "Voltage sags in industrial systems," Industry Applications, IEEE Transactions on , vol.29, no.2,pp.397,403, Mar/Apr 1993.

[16]. Bhattacharya Sourav, "Applications of DSTATCOM Using MATLAB/Simulation in Power System". RJRS, vol.1,2012. Page No:430-433.